










HIV, plastic surgery and Brazil: a narrative review

HIV, cirurgia plástica e Brasil: uma revisão narrativa

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■ ABSTRACT

Introduction: Brazil presents one of the best HIV programs globally, and one of the characteristics of this approach is multidisciplinary, where plastic surgery is involved. **Objective:** To conduct a non-systematic review of what has already been published on HIV by Brazilian plastic surgeons, analyzing the main themes studied. **Methods:** Research at PubMed, EMBASE, MEDLINE, LILACS, SciELO, *Revista Brasileira de Cirurgia Plástica* with the following terms: “plastic surgery HIV”, “plastic surgery AIDS”, “HIV plastic surgery”, “AIDS plastic surgery”, “HIV” and “AIDS. **Results:** We found 862 articles, and after selecting those written by Brazilian plastic surgeons, we reached a final number of 15, produced by 10 institutions from 5 Brazilian states. The most addressed theme was lipodystrophy in 13 publications. **Discussion:** From the selected articles, it is clear the concentration in the Southeast region. The most addressed theme was lipodystrophy, and the articles on it were published after ordinance GM/MS 2582. Areas such as skin cancer, genetics and surgery for gender reassignment have not been published, although there is already content related to HIV and plastic surgery in other countries. **Conclusion:** Despite quality publications, there are still areas in which Brazilian plastic surgery research needs to explore concerning HIV/AIDS. **Keywords:** HIV; HIV-associated lipodystrophy syndrome; Ethics; Plastic surgery; Review, review.

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■ RESUMO

Introdução: O Brasil apresenta um dos melhores programas de combate ao HIV do mundo e uma das características dessa abordagem é a multidisciplinaridade, onde a cirurgia plástica está envolvida. **Objetivo:** Realizar uma revisão não sistemática do que já foi publicado sobre HIV por cirurgiões plásticos brasileiros, analisando os principais temas estudados. **Métodos:** Pesquisas no PubMed, EMBASE, MEDLINE, LILACS, SciELO, Revista Brasileira de Cirurgia Plástica com os seguintes termos: “plastic surgery HIV”, “plastic surgery AIDS”, “HIV cirurgia plástica”, “AIDS cirurgia plástica”, “HIV” e “AIDS”. **Resultados:** No total encontramos 862 artigos e após selecionar os escritos por cirurgiões plástico brasileiros, chegamos a um número final de 15, produzidos por 10 instituições de 5 estados brasileiros. O tema mais abordado foi lipodistrofia em 13 publicações. **Discussão:** Dos artigos selecionados, fica clara a concentração na região Sudeste. O tema mais abordado foi a lipodistrofia e os artigos sobre este foram publicados posteriores à Portaria GM/MS 2582. Áreas como neoplasia cutânea, genética e cirurgia para mudança de sexo não foram alvos de publicações, embora em outros países já haja conteúdo relacionado a HIV e cirurgia plástica produzido. **Conclusão:** Apesar de publicações de qualidade ainda há áreas em que a pesquisa da cirurgia plástica brasileira necessita explorar em relação ao HIV/AIDS. **Descritores:** HIV; Síndrome de lipodistrofia associada ao HIV; Ética; Cirurgia plástica; Revisão.

INTRODUCTION

Through the Unified Health System (SUS), Brazil remains one of the leading countries in the fight against acquired immunodeficiency syndrome (AIDS). The universal and free treatment policy for patients diagnosed with human immunodeficiency virus (HIV) resulted in a drop in the number of infected and mortality. Today, the epidemic is considered stable in the national territory, with a prevalence of 0.4% of the population^{1,2}.

And it is not only the distribution of antiretrovirals that HIV-positive people have access. The Ministry of Health guarantees integrated and multidisciplinary-based care. This is essential in the follow-up and better treatment of drug treatment³.

Plastic surgery is one of the areas involved in the management of these patients. In addition, the scope of specialty functions is broad, such as tumor resections and reconstructions, treatment of soft tissue infections, and the approach of lipodystrophy associated with the use of antiretrovirals.

With the advent of antiretroviral therapy and increased survival, lipodystrophy associated with this medication has become a frequent complaint of HIV-infected patients. With an estimated prevalence between 6-80%, complaints range from lipoatrophy in the face, limbs and buttocks, to accumulation of adipose

tissue in the abdomen, cervical region and back. Since 2004, the Ministry of Health has been offering plastic surgery for the treatment of this condition. Thus, Brazil became the first country in the world to offer this therapy for free⁴⁻¹¹.

Given the role and importance of plastic surgery in the multidisciplinary treatment of HIV, its availability of care and procedures guaranteed by the Ministry of Health, this work aims to conduct a non-systematic review of what has already been published, with an exclusive focus on AIDS/HIV, by Brazilian plastic surgeons.

METHODS

The study was conducted at the State University of São Paulo, in Botucatu, in July 2020. The research was conducted at PubMed, MEDLINE, LIACS, SciELO, EMBASE with the following terms: “plastic surgery HIV”, “plastic surgery AIDS”, “HIV plastic surgery” and “AIDS plastic surgery”. Another search was conducted in the *Revista Brasileira de Cirurgia Plástica*, with the terms “HIV” and “AIDS”.

The articles should present as author or co-author at least one plastic surgeon linked to a Brazilian institution. The study had to contain exclusive content on HIV/AIDS. Publication type “Letter to Editor” was excluded from the search.

We analyzed the theme addressed, the year, the city and the institution of the publication, the type of study, the objective, and the results obtained.

RESULTS

In total, we found 862 articles. After reading the titles, abstracts and evaluations of the authors' information, we selected 132 articles produced by plastic surgeons as authors or co-authors. Of these, 17 studies were carried out or had the collaboration of Brazilians. Two were excluded from the study. One was a report of a surgical technique with an HIV-negative

patient, and the other was "Letter to the Editor". Thus, 15 articles remained (Table 1). The first article dates from the year 2002.

The *Revista Brasileira de Cirurgia Plástica* contains 11 of these publications. The other three were published in international journals in English: *Annals of Plastic Surgery*, *International Journal of Dermatology*, and *International Journal of STD & AIDS* (Figure 1).

The studies are from 10 Brazilian institutions in 5 states: Minas Gerais, Pernambuco, São Paulo, Rio de Janeiro and Rio Grande do Sul (Figures 2 and 3).

Table 1. Articles on HIV performed by Brazilian plastic surgeons.

Authors	Title	Year	Magazine	Type of study
Robadey et al. ⁸	Cosmetic plastic surgery in patients with human immunodeficiency virus (HIV) - is there consensus?	2002	RBCP	Non-systematic review
Gonella et al. ⁹	Evaluation of the use of polymethylmethacrylate in the correction of facial lipodystrophy associated with antiretroviral therapy in HIV-positive patients	2007	RBCP	Non-randomized non-controlled clinical trial
Araujo et al. ¹⁰	Logistics of surgical treatment of lipodystrophy in HIV/AIDS seropositive patients at the Hospital do Servidor Público Estadual de São Paulo.	2010	RBCP	Retrospective
Sakabe et al. ¹¹	Treatment of gluteal lipoatrophy secondary to antiretroviral therapy with inclusion silicone implants	2010	RBCP	Retrospective
Martins et al. ¹²	Facial aging and lipoatrophy: how to differentiate in patients living with AIDS	2011	RBCP	Cross-sectional convenience sample
Gomes et al. ¹³	Rithydraplasty for the treatment of facial lipodystrophy in HIV+ patients	2011	RBCP	Case report
Warde et al. ¹⁴	The impact of facial lipoatrophy treatment with polymethyl methacrylate in AIDS patients as measured by four quality-of-life questionnaires	2011	International Journal of STD & AIDS	Non-randomized controlled trial
Dornelas et al. ¹⁵	Bioplasty in lipodystrophy of patients with HIV/AIDS	2012	RBCP	Retrospective
Quintas et al. ¹⁶	Treatment of facial lipoatrophy with polymethylmethacrylate among patients with human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS): impact on the quality of life	2014	International Journal of Dermatology	Non-randomized uncontrolled clinical trial
Scozzafave et al. ¹⁷	Surgical treatment of 510 patients with lipodystrophy secondary to the use of antiretrovirals	2015	RBCP	Retrospectivo
Muüller Neto et al. ¹⁸	Surgical correction of lipodystrophy related to the use of antiretroviral therapy: an analysis of the procedures performed and the impact on patients	2015	RBCP	Retrospective
Martins et al. ¹⁹	Facial filling with polymethylmethacrylate in patients living with acquired immunodeficiency syndrome (AIDS)	2016	RBCP	Cross-sectional convenience sample
Barreiro et al. ²⁰	Impact on quality of life in patients who use retroviral medication and submitted to gluteoplasty: a historical cohort study	2017	RBCP	Retrospective - historical cohort
Andrade et al. ²¹	Gluteal augmentation with intramuscular implants in patients with human immunodeficiency virus with lipoatrophy related to the use of antiretroviral therapy	2017	Annals of Plastic Surgery	retrospective
Silva et al. ²²	Case report: persistent urinary retention after abdominoplasty in HIV-positive patients.	2019	RBCP	Case report

DISCUSSION

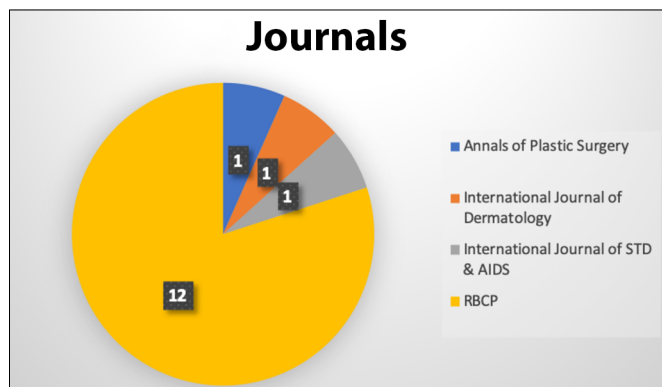


Figure 1. Journals in which the articles found were published.

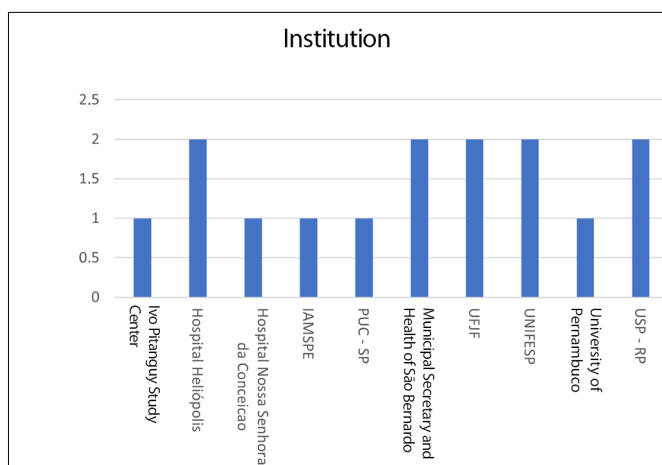


Figure 2. Brazilian institutions responsible for producing HIV articles related to topics related to plastic surgery.

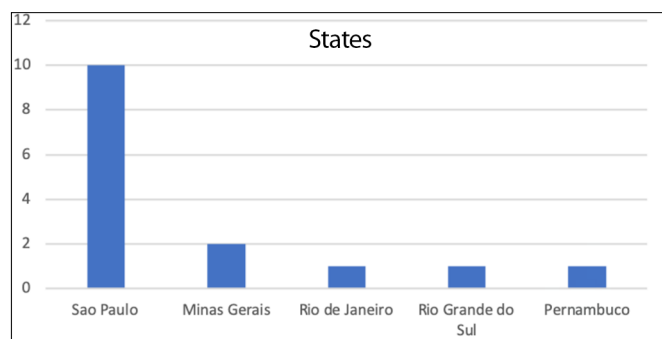


Figure 3. States of the federation of the institutions that carried out the publications.

The types of the study were: a non-systematic review, one case report, two cross-sectional, three clinical trials and six retrospectives.

The themes were medical ethics and lipodystrophy; the latter was the theme of most studies, i.e., 13. Face lipodystrophy was the most studied in seven articles.

Among the objectives in ten articles was to analyze patients' quality of life and satisfaction after procedures for correction of lipodystrophy.

The first cases of AIDS in Brazil were diagnosed in 1982, but the first article found in our review, with authors and themes related to plastic surgery, was 20 years later, in 2002. In the discussion held by Robadey et al. (2002)⁸, with Professor Ivo Pitanguy, always illustrious and pioneer, ethics concerning elective aesthetic procedures in infected patients, was discussed^{18,23}. This article reviewed the literature and researched members of the SBCP-RJ on the subject. As emphasized in this publication, the intention was not to define conduct about operating or not HIV-positive patients with cosmetic complaints but to raise the discussion in the plastic surgery environment. Most of the interviewees would perform aesthetic procedures in these patients, and the greatest fear of surgeons was the contamination of the team. Finally, the article leaves guidelines followed today: the need for preoperative tests, the importance of the patient's clinical stability, good multidisciplinary care and those surgical expectations correspond to reality⁸.

Regarding geographic distribution, ten institutions from eight cities were responsible for the production of these articles: Federal University of São Paulo (UNIFESP), Federal University of Juiz de Fora (UFJF), University of São Paulo-Ribeirão Preto (USP-RP), Hospital Heliópolis and Municipal Secretariat of São Bernardo has more than one publication. However, they are concentrated in 5 states – São Paulo, Minas Gerais, Rio de Janeiro, Rio Grande do Sul and Pernambuco.

The Southeast has the highest rate of infected per thousand inhabitants, followed by the South. However, the detection rate in the last decade has fallen in both regions and has increased in all states of the Northeast and North (except Rondônia). However, it is not only the question of the number of HIV-positive patients that causes more publications but rather greater investments in research due to more favorable economic conditions and a higher concentration of lipodystrophy outpatient clinics (since this was the most addressed subject) in the Southeast^{24,25}.

Except for the article on ethics, all others were related to lipodystrophy. Even the case report published on urinary retention was a patient submitted to lipoabdominoplasty due to complaints of adipose tissue accumulation in the abdomen. There is also an article on outpatient flow and patients treated with lipodystrophy but without data analysis. The article shows the benefit of care and surgeries⁹⁻²².

The expressive number of publications affirms the importance of the ordinance GM/MS 2582, not only for patients but also for the scientific environment⁹.

Face lipodystrophy was the main subject in seven articles. Gonella et al. (2007)⁹ were the first to publish on this topic, evaluating facial filling with polymethylmethacrylate (PMMA) in facial lipoatrophy. Among the 46 patients, 56% were male, with a mean age of 35 years; 31% required more than one application of PMMA to achieve satisfaction with the result, and the nasogenic region was the place with the highest number of fillings. The complication described was severe pain in 22% of the cases during the procedure, but they reported tolerating the symptom⁸.

In 2011, three studies were published on face complaints. Warde et al.¹⁴ analyzed the impact of facial filling on the quality of life of patients, concluding improvement after treatment and improvement of symptoms of depression and increased self-esteem. Gomes et al.¹³ published a case report on the treatment of facial lipodystrophy, but in a case where there was an accumulation of adipose tissue, through rhytidoplasty, with good results. And Martins et al.¹² evaluated the diagnostic differences between facial lipoatrophy caused by aging and antiretrovirals, however, without achieving success in this objective.

The following year, Dornelas et al. (2012)¹⁵ evaluated the treatment with completion, concluding good results and patient satisfaction. However, 12.1% of the patients presented complications (granulomas), which were treated with triamcinolone.

Thursdays et al. (2014)¹⁶ evaluated the quality of life after completion, and the conclusion was the improvement after the procedure. One data presented in this study, which is not included in the other evaluated, is the socioeconomic profile of these patients. Most were male; education level: high school; civil status: single; income less than one minimum wage; and retirees.

In a new study on facial lipodystrophy, Martins et al. (2016)¹⁹ evaluated the discomfort caused by lipoatrophy before application, the expectation before treatment, and the satisfaction after. Most of the sample noticed atrophy, have high expectations of filling out and considered the treatment satisfactory. In addition, this article evaluated the race of patients, with 100% being white.

Concerning the other complaints of lipodystrophy, two addressed surgical procedures in general and three others that focused on the treatment of gluteal atrophy.

In 2015, Scozzafave et al.¹⁷ published an analysis of the case series of surgeries performed to treat lipodystrophy in a total of 510 procedures. Most were women (65.5%). The most performed surgery was liposuction of the back/gibbon in 199 patients and 88 surgeries to include gluteal prostheses. The patients presented satisfactory aesthetic results and improvement of psychological aspects.

In the same year, Müller Neto et al. (2015)¹⁸ presented data on the complaints and procedures most performed in 26 patients seeking care for surgical correction of lipodystrophy. The female gender was predominant, 77.8%. The main reasons for care were dorsal gibbon (44.4%), abdominal lipodystrophy (44.4%) and gluteal lipoatrophy (37.04%); 36 procedures were performed.

Giba liposuction (48.1%) and liposuction of the abdomen and flanks (44.4%) were the most common. There were two complications. Although the majority presented satisfaction (70.4%), more than half (59.2%) would like new procedures due to other complaints related to lipodystrophy¹⁸.

Sakabe et al., in 2010¹¹, performed the first specific work to treat HIV-related gluteal lipodystrophy; 47 patients were analyzed. 82% were women, the mean volume of implants was 220ml. Five patients presented complications: four dehiscence of the surgical wound and one episode of late infection from the implant store; 87% were satisfied in the postoperative period¹⁰.

Barreiro et al. (2017)²⁰ analyzed the impact of the inclusion of gluteal prosthesis on the quality of life of patients with complaints of lipoatrophy in this anatomical region; 23 patients submitted to this surgery, performed with the X-Y technique, mostly women (83.7%), with an average volume of 330ml. There was a significant improvement in 19 of the 32 items of the questionnaire applied. Thus, the authors proved the benefit of surgery in the quality of life of patients.

Andrade et al. (2017)²¹ evaluated ten patients about the technique, complications, and satisfaction regarding the surgery to include gluteal implants; 80% were women, the mean volume of the implants was 243ml. There were two episodes of seroma and one of wound dehiscence as postoperative complications; 80% of the patients reported that the result was excellent.

When analyzing the articles, we noticed an improvement in the quality of life and patient satisfaction in almost all the works mentioned here. This factor is extremely important in the multidisciplinary treatment of HIV, as it also contributes to better adherence to treatment and reducing stigma related to this disease^{26,27}.

CONCLUSION

The national articles on plastic surgery and HIV were carried out mainly in the Southeast region, focusing on lipodystrophy. The studies show the importance of the specialty, especially in improving patients' quality of life, helping to reduce the stigma caused by this disease.

COLLABORATIONS

MSS	Analysis and/or data interpretation, Conception and design study, Data Curation, Formal Analysis, Methodology, Project Administration, Writing - Original Draft Preparation.
BFMN	Data Curation, Writing - Original Draft Preparation.
LBC	Writing - Original Draft Preparation.
ABPMO	Data Curation.
MMC	Data Curation.
IDS	Data Curation, Writing - Original Draft Preparation.
AAP	Supervision, Writing - Review & Editing.

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